

**Preliminary**



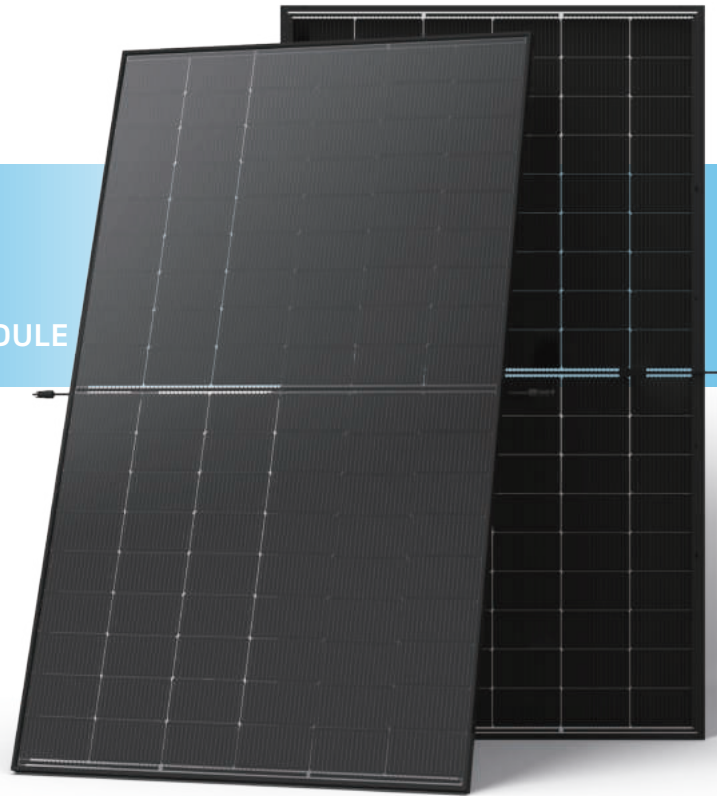
# N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG18RC.27 485-505W

**505<sub>W</sub>** / MAXIMUM  
POWER OUTPUT

**22.7%** / MAXIMUM  
EFFICIENCY



## High customer value

- Lower LCOE (levelized cost of energy), reduced BOS (balance of system) cost, shorter payback time
- Designed for compatibility with existing mainstream system components
- High module power, high string power and low voltage design
- Easy to handle and install on roofs with excellent size and light weight



## High power up to 505W

- Up to 22.7% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



## Dual-glass design, high reliability

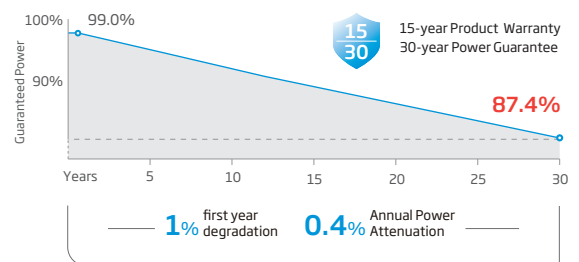
- Less prone to micro-cracks and scratches on the back during installation
- Applicable in harsh environments such as salt, ammonia, sand, high temperature and high humidity areas with excellent fire rating, weather resistance, salt spray, sand dust, ammonia performance
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



## High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C) and operating temperature

## Performance Warranty



\* Please refer to product warranty for details

## Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System



## ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts- $P_{MAX}(W_p)^*$	485	371	490	375	495	378	500	382	505	386
Power Selection (W)**	0 ~ +5									
Maximum Power Voltage- $V_{MPP}$ (V)	32.7	30.8	32.9	31.0	33.1	31.3	33.3	31.5	33.5	31.8
Maximum Power Current- $I_{MPP}$ (A)	14.84	12.02	14.91	12.06	14.97	12.08	15.03	12.11	15.09	12.15
Open Circuit Voltage- $V_{oc}$ (V)	39.4	37.4	39.6	37.6	39.8	37.7	40.1	38.0	40.3	38.3
Short Circuit Current- $I_{sc}$ (A)	15.76	12.70	15.80	12.74	15.83	12.76	15.86	12.78	15.89	12.81
Module Efficiency $\eta_m$ (%)	21.8		22.0		22.3		22.5		22.7	

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s. \*Measuring tolerance: ±3%. \*\*Power selection up to: +3%.

## Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Peak Power Watts- $P_{MAX}(W_p)^*$	509	534	515	539	520	545	525	550	530	556
Maximum Power Voltage- $V_{MPP}$ (V)	32.7	32.7	32.9	32.9	33.1	33.1	33.3	33.3	33.5	33.5
Maximum Power Current- $I_{MPP}$ (A)	15.58	16.32	15.66	16.40	15.72	16.47	15.78	16.53	15.84	16.60
Open Circuit Voltage- $V_{oc}$ (V)	39.4	39.4	39.6	39.6	39.8	39.8	40.1	40.1	40.3	40.3
Short Circuit Current- $I_{sc}$ (A)	16.55	17.34	16.59	17.38	16.62	17.41	16.65	17.45	16.68	17.48

Power Bifaciality: 80±5%.

## TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature) 43°C (±2°C)

Temperature Coefficient of  $P_{MAX}$  - 0.29% /°C

Temperature Coefficient of  $V_{oc}$  - 0.24% /°C

Temperature Coefficient of  $I_{sc}$  0.04% /°C

Due to different testing methods, the actual performances might differ from the declared specifications.

## MAXIMUM RATINGS

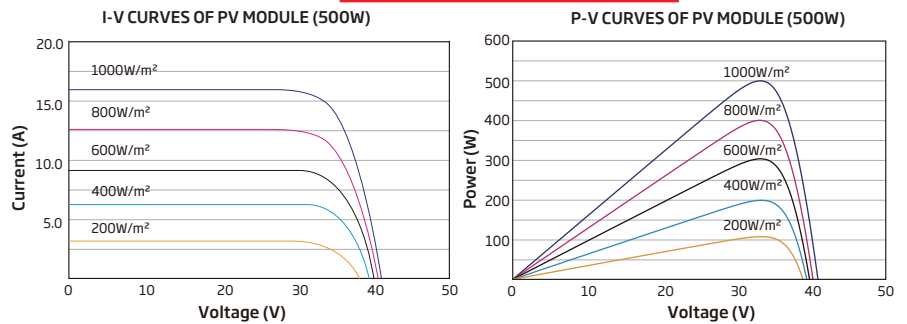
Operational Temperature -40~+85°C

Maximum System Voltage 1500V DC (IEC)

Max Series Fuse Rating 30A

## CURVES OF PV MODULE

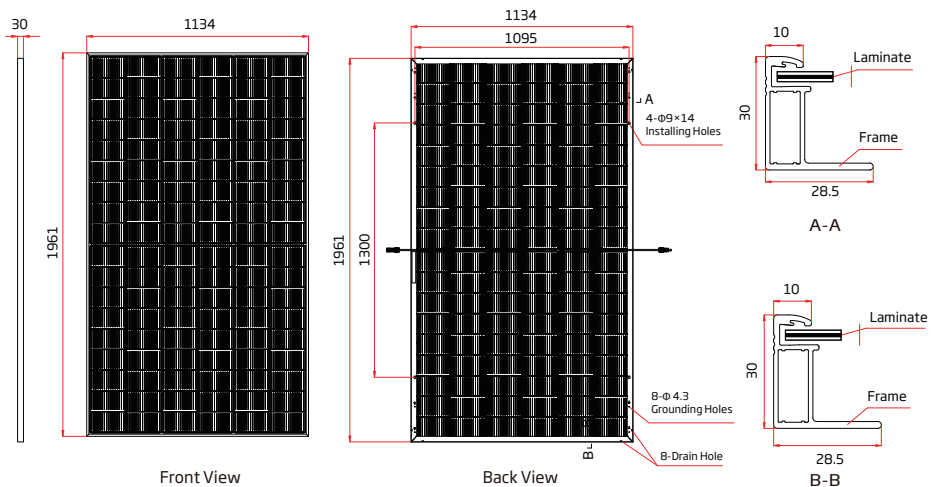
**Preliminary**



## MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	108 cells
Module Dimensions	1961×1134×30 mm (77.20×44.65×1.18 inches)
Weight	23.6 kg (52.0 lb)
Front Glass	1.6mm (0.06inches), AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06inches), Heat Strengthened Glass
Frame	30mm (1.18inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ) Portrait: 350/280 mm (13.78/11.02 inches) Length can be customized
Connector	MC4 EV02 / TS4 Plus / TS4*
Packaging	Modules per box: 36 pieces Modules per 40' container: 864 pieces

\*Please refer to regional datasheet for specified connector.



www.trinasolar.com

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
© 2024 Trina Solar Co., Ltd. All rights reserved. Specifications included in this datasheet are subject to change without notice.  
The right of final interpretation belongs to Trina Solar Co., Ltd.  
Version number: TSM\_EN\_2024\_PA2